

Notice of Allowability

Application No.

09/821,409

Examiner

Daniel Swerdlow

Applicant(s)

TIAN ET AL.

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 29 March 2001.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☒ The drawings filed on 29 March 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 7/5/2001
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

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B.D
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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas Wettermann Reg. No. 41,523 on 16 August 2004.

The application has been amended as follows:

In the Claims:

In Claim 1, line 6: Insert --reference-- before "likelihood ratios".

In Claim 5, line 7: Insert --reference-- before "likelihood ratios".

In Claim 9, line 6: Insert --reference-- before "likelihood ratios".

In Claim 10, line 21: Insert --reference-- before "likelihood ratios".

In Claim ~~11~~ line ~~19~~: Insert --reference-- before "likelihood ratios".

2. The following is an examiner's statement of reasons for allowance:
3. Independent Claims 1, 5, 9, 10 and 11 are essentially similar to one another. The reasons for allowance for these claims are described below using Claim 5 as a representative claim.
4. Regarding Claim 5, US Patent 5,765,125 to Daugherty et al. discloses a DTMF detector (i.e., a method for determining a DTMF tone) comprising: an LPC coefficient calculator (Fig. 1, reference 26; column 3, line 56 through column 4, line 8) that calculates and stores LPC

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coefficients representative of an input samples (i.e., an input signal); a DFT circuit (Fig. 1, reference 38; column 5, lines 25-36) that converts LPC coefficients into frequency spectra (i.e., determines LSF coefficients based on the input signal); and a valid digit gate (Fig. 1, reference 34; column 6, lines 1-5) that indicates a digit determination circuit (Fig. 1, reference 10; column 3, lines 15-18) valid digit determination decision based on the DFT output (i.e., verifies the validity of the initial tone based on the LSF coefficients). Further, Daugherty determines validity based of slopes (i.e., ratios) of signal energy functions for frequencies below, at and above the initial determination (i.e., a reference template) (column 5, lines 37-67). Therefore Daugherty anticipates all elements of Claim 5 except those relating to the use of likelihood ratios.

Daugherty uses energy ratios. As such, the prior art neither anticipates nor makes obvious the claimed invention and Claim 5 is allowable.

5. Claims 1, 9, 10 and 11 are essentially similar to Claim 5 and are allowable for the same reasons.

6. Claims 2 through 4 are allowable due to dependence from Claim 1.

7. Claims 6 through 8 are allowable due to dependence from Claim 5.

8. Independent Claims 12, 15, 16, 17 and 18 are essentially similar to one another. The reasons for allowance for these claims are described below using Claim 12 as a representative claim.

9. Claim 12 is essentially similar to Claim 5, but with the additional limitations of determining the auto-correlates of the input signal and determining the LPC coefficients from the auto-correlates. Daugherty further discloses an auto-correlation calculator (Fig. 1, reference 24; column 3, line 56 through column 4, line 8) that auto-correlates the input samples and provides

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auto-correlation values to the LPC calculator). Therefore Daugherty anticipates all elements of Claim 12 except those relating to the use of likelihood ratios. Daugherty uses energy ratios. As such, the prior art neither anticipates nor makes obvious the claimed invention and Claim 12 is allowable.

10. Claims 15 through 18 are essentially similar to Claim 12 and are allowable for the same reasons.

11. Claims 13 and 14 are allowable due to dependence from Claim 12.

12. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 703-305-4088. The examiner can normally be reached on Monday through Friday between 8:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forrester Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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